

SEQUENCE LISTING

<110> ITOH, YASUAKI
NISHI, KAZUNORI
OGI, KAZUHIRO
OHKUBO, SHOICHI
MOGI, SHINICHI
NOGUCHI, YUKO

<120> NOVEL PEPTIDE AND DNA THEREOF

<130> 56804-46342

<140> 10/019,455

<141> 2001-12-28

<160> 53

<170> PatentIn Ver. 2.1

<210> 1

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 1

cgcagaagaa gtcaatatcc gtggtg

26

<210> 2

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 2

cagcgtgtgt accaggaagc taccaa

26

<210> 3

<211> 131

<212> PRT

<213> Homo sapiens

<400> 3

Met Ala Arg Ser Leu Val Cys Leu Gly Val Ile Ile Leu Leu Ser Ala
1 5 10 15

Phe Ser Gly Pro Gly Val Arg Gly Gly Pro Met Pro Lys Leu Ala Asp
20 25 30

Arg Lys Leu Cys Ala Asp Gln Glu Cys Ser His Pro Ile Ser Met Ala
35 40 45

Val Ala Leu Gln Asp Tyr Met Ala Pro Asp Cys Arg Phe Leu Thr Ile
 50 55 60
 His Arg Gly Gln Val Val Tyr Val Phe Ser Lys Leu Lys Gly Arg Gly
 65 70 75 80
 Arg Leu Phe Trp Gly Gly Ser Val Gln Gly Asp Tyr Tyr Gly Asp Leu
 85 90 95
 Ala Ala Arg Leu Gly Tyr Phe Pro Ser Ser Ile Val Arg Glu Asp Gln
 100 105 110
 Thr Leu Lys Pro Gly Lys Val Asp Val Lys Thr Asp Lys Trp Asp Phe
 115 120 125
 Tyr Cys Gln
 130

<210> 4
 <211> 384
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(384)

<400> 4
 atg gca aga ata ttg tta ctt ttc ctc ccg ggt ctt gtg gct gta tgt 48
 Met Ala Arg Ile Leu Leu Leu Phe Leu Pro Gly Leu Val Ala Val Cys
 1 5 10 15
 gct gtg cat gga ata ttt atg gac cgt cta gct tcc aag aag ctc tgt 96
 Ala Val His Gly Ile Phe Met Asp Arg Leu Ala Ser Lys Lys Leu Cys
 20 25 30
 gca gat gat gag tgt gtc tat act att tct ctg gct agt gct caa gaa 144
 Ala Asp Asp Glu Cys Val Tyr Thr Ile Ser Leu Ala Ser Ala Gln Glu
 35 40 45
 gat tat aat gcc ccg gac tgt aga ttc att aac gtt aaa aaa ggg cag 192
 Asp Tyr Asn Ala Pro Asp Cys Arg Phe Ile Asn Val Lys Lys Gly Gln
 50 55 60
 cag atc tat gtg tac tca aag ctg gta aaa gaa aat gga gct gga gaa 240
 Gln Ile Tyr Val Tyr Ser Lys Leu Val Lys Glu Asn Gly Ala Gly Glu
 65 70 75 80
 ttt tgg gct ggc agt gtt tat ggt gat ggc cag gac gag atg gga gtc 288
 Phe Trp Ala Gly Ser Val Tyr Gly Asp Gly Gln Asp Glu Met Gly Val
 85 90 95
 gtg ggt tat ttc ccc agg aac ttg gtc aag gaa cag cgt gtg tac cag 336
 Val Gly Tyr Phe Pro Arg Asn Leu Val Lys Glu Gln Arg Val Tyr Gln
 100 105 110

3

gaa gct acc aag gaa gtt ccc acc acg gat att gac ttc ttc tgc gag 384
 Glu Ala Thr Lys Glu Val Pro Thr Thr Asp Ile Asp Phe Phe Cys Glu
 115 120 125

<210> 5
 <211> 18
 <212> PRT
 <213> Homo sapiens

<400> 5
 Met Ala Arg Ile Leu Leu Leu Phe Leu Pro Gly Leu Val Ala Val Cys
 1 5 10 15

Ala Val

<210> 6
 <211> 128
 <212> PRT
 <213> Homo sapiens

<400> 6
 Met Ala Arg Ile Leu Leu Leu Phe Leu Pro Gly Leu Val Ala Val Cys
 1 5 10 15

Ala Val His Gly Ile Phe Met Asp Arg Leu Ala Ser Lys Lys Leu Cys
 20 25 30

Ala Asp Asp Glu Cys Val Tyr Thr Ile Ser Leu Ala Ser Ala Gln Glu
 35 40 45

Asp Tyr Asn Ala Pro Asp Cys Arg Phe Ile Asn Val Lys Lys Gly Gln
 50 55 60

Gln Ile Tyr Val Tyr Ser Lys Leu Val Lys Glu Asn Gly Ala Gly Glu
 65 70 75 80

Phe Trp Ala Gly Ser Val Tyr Gly Asp Gly Gln Asp Glu Met Gly Val
 85 90 95

Val Gly Tyr Phe Pro Arg Asn Leu Val Lys Glu Gln Arg Val Tyr Gln
 100 105 110

Glu Ala Thr Lys Glu Val Pro Thr Thr Asp Ile Asp Phe Phe Cys Glu
 115 120 125

<210> 7
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 7
 cacacagcac gtatctgcag ttgg

<210> 8
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 8
 aacttggtga aggagcagcg tgta

24

<210> 9
 <211> 130
 <212> PRT
 <213> Mus sp.

<400> 9
 Met Val Trp Ser Pro Val Leu Leu Gly Ile Val Val Leu Ser Val Phe
 1 5 10 15
 Ser Gly Pro Ser Arg Ala Asp Arg Ala Met Pro Lys Leu Ala Asp Trp
 20 25 30
 Lys Leu Cys Ala Asp Glu Glu Cys Ser His Pro Ile Ser Met Ala Val
 35 40 45
 Ala Leu Gln Asp Tyr Val Ala Pro Asp Cys Arg Phe Leu Thr Ile Tyr
 50 55 60
 Arg Gly Gln Val Val Tyr Val Phe Ser Lys Leu Lys Gly Arg Gly Arg
 65 70 75 80
 Leu Phe Trp Gly Gly Ser Val Gln Gly Gly Tyr Tyr Gly Asp Leu Ala
 85 90 95
 Ala Arg Leu Gly Tyr Phe Pro Ser Ser Ile Val Arg Glu Asp Leu Thr
 100 105 110
 Leu Lys Pro Gly Lys Ile Asp Met Lys Thr Asp Gln Trp Asp Phe Tyr
 115 120 125
 Cys Gln
 130

<210> 10
 <211> 384
 <212> DNA
 <213> Mus sp.

<220>
 <221> CDS
 <222> (1) .. (384)

5

<400> 10

atg	gca	agg	ata	ttg	att	ctt	ttg	ctt	ggg	ggc	ctt	gtg	ggt	cta	tgt	48
Met	Ala	Arg	Ile	Leu	Ile	Leu	Leu	Leu	Gly	Gly	Leu	Val	Val	Leu	Cys	
1				5					10					15		

gcc	ggg	cat	ggt	gta	ttt	atg	gat	aaa	ctt	tct	tct	aag	aag	ttg	tgt	96
Ala	Gly	His	Gly	Val	Phe	Met	Asp	Lys	Leu	Ser	Ser	Lys	Lys	Leu	Cys	
			20					25					30			

gcg	gat	gag	gag	tgt	gtc	tat	act	att	tct	ctg	gca	aga	gca	cag	gaa	144
Ala	Asp	Glu	Glu	Cys	Val	Tyr	Thr	Ile	Ser	Leu	Ala	Arg	Ala	Gln	Glu	
		35					40					45				

gat	tac	aat	gcc	cca	gac	tgt	agg	ttc	atc	gat	gtc	aag	aaa	ggg	cag	192
Asp	Tyr	Asn	Ala	Pro	Asp	Cys	Arg	Phe	Ile	Asp	Val	Lys	Lys	Gly	Gln	
	50					55					60					

cag	atc	tat	gtt	tac	tcc	aag	ctg	gta	aca	gaa	aac	gga	gct	gga	gag	240
Gln	Ile	Tyr	Val	Tyr	Ser	Lys	Leu	Val	Thr	Glu	Asn	Gly	Ala	Gly	Glu	
65					70					75					80	

ttt	tgg	gct	ggc	agt	gtt	tat	ggt	gac	cac	cag	gat	gag	atg	gga	att	288
Phe	Trp	Ala	Gly	Ser	Val	Tyr	Gly	Asp	His	Gln	Asp	Glu	Met	Gly	Ile	
				85					90					95		

gta	ggt	tat	ttc	ccc	agc	aac	ttg	gtg	aag	gag	cag	cgt	gta	tac	cag	336
Val	Gly	Tyr	Phe	Pro	Ser	Asn	Leu	Val	Lys	Glu	Gln	Arg	Val	Tyr	Gln	
			100					105					110			

gag	gcc	acc	aag	gag	atc	cca	acc	acg	gat	att	gac	ttc	ttc	tgt	gaa	384
Glu	Ala	Thr	Lys	Glu	Ile	Pro	Thr	Thr	Asp	Ile	Asp	Phe	Phe	Cys	Glu	
		115					120					125				

<210> 11

<211> 18

<212> PRT

<213> Mus sp.

<400> 11

Met	Ala	Arg	Ile	Leu	Ile	Leu	Leu	Leu	Gly	Gly	Leu	Val	Val	Leu	Cys
1				5					10					15	

Ala Gly

<210> 12

<211> 128

<212> PRT

<213> Mus sp.

<400> 12

Met	Ala	Arg	Ile	Leu	Ile	Leu	Leu	Leu	Gly	Gly	Leu	Val	Val	Leu	Cys
1				5					10					15	

Ala	Gly	His	Gly	Val	Phe	Met	Asp	Lys	Leu	Ser	Ser	Lys	Lys	Leu	Cys
			20					25					30		

Ala	Asp	Glu	Glu	Cys	Val	Tyr	Thr	Ile	Ser	Leu	Ala	Arg	Ala	Gln	Glu
		35					40					45			
Asp	Tyr	Asn	Ala	Pro	Asp	Cys	Arg	Phe	Ile	Asp	Val	Lys	Lys	Gly	Gln
	50					55					60				
Gln	Ile	Tyr	Val	Tyr	Ser	Lys	Leu	Val	Thr	Glu	Asn	Gly	Ala	Gly	Glu
	65				70					75					80
Phe	Trp	Ala	Gly	Ser	Val	Tyr	Gly	Asp	His	Gln	Asp	Glu	Met	Gly	Ile
				85					90					95	
Val	Gly	Tyr	Phe	Pro	Ser	Asn	Leu	Val	Lys	Glu	Gln	Arg	Val	Tyr	Gln
			100				105						110		
Glu	Ala	Thr	Lys	Glu	Ile	Pro	Thr	Thr	Asp	Ile	Asp	Phe	Phe	Cys	Glu
		115					120					125			

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<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

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<400> 13
accacagtcc atgccatcac                                20
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<210> 14
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

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<400> 14
tccaccaccc tggtgctgta                20
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<210> 15
<211> 24
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 15
ctaccgcgtg cgcccatcat caga 24

<210> 16
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 16
gggaggccgg tttggttggg gtaga

25

<210> 17
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 17
cacactggta agtggggcaa gaccg

25

<210> 18
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 18
ggattgtgtt gtttcagggt tcggg

25

<210> 19
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 19
accccctggc ccctctgga

19

<210> 20
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 20
 atctcacctt tagcccctgg aatg 24

<210> 21
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 21
 gccgggcatg gtgtatttat 20

<210> 22
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 22
 gatctccttg gtggcctcct ggtat 25

<210> 23
 <211> 330
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(330)

<400> 23
 cat gga ata ttt atg gac cgt cta gct tcc aag aag ctc tgt gca gat 48
 His Gly Ile Phe Met Asp Arg Leu Ala Ser Lys Lys Leu Cys Ala Asp
 1 5 10 15

gat gag tgt gtc tat act att tct ctg gct agt gct caa gaa gat tat 96
 Asp Glu Cys Val Tyr Thr Ile Ser Leu Ala Ser Ala Gln Glu Asp Tyr
 20 25 30

aat gcc ccg gac tgt aga ttc att aac gtt aaa aaa ggg cag cag atc 144
 Asn Ala Pro Asp Cys Arg Phe Ile Asn Val Lys Lys Gly Gln Gln Ile
 35 40 45

9

tat	gtg	tac	tca	aag	ctg	gta	aaa	gaa	aat	gga	gct	gga	gaa	ttt	tgg	192
Tyr	Val	Tyr	Ser	Lys	Leu	Val	Lys	Glu	Asn	Gly	Ala	Gly	Glu	Phe	Trp	
	50					55				60						
gct	ggc	agt	gtt	tat	ggg	gat	ggc	cag	gac	gag	atg	gga	gtc	gtg	ggg	240
Ala	Gly	Ser	Val	Tyr	Gly	Asp	Gly	Gln	Asp	Glu	Met	Gly	Val	Val	Gly	
	65				70				75						80	
tat	ttc	ccc	agg	aac	ttg	gtc	aag	gaa	cag	cgt	gtg	tac	cag	gaa	gct	288
Tyr	Phe	Pro	Arg	Asn	Leu	Val	Lys	Glu	Gln	Arg	Val	Tyr	Gln	Glu	Ala	
				85					90					95		
acc	aag	gaa	gtt	ccc	acc	acg	gat	att	gac	ttc	ttc	tgc	gag			330
Thr	Lys	Glu	Val	Pro	Thr	Thr	Asp	Ile	Asp	Phe	Phe	Cys	Glu			
			100					105					110			

<210> 24
 <211> 110
 <212> PRT
 <213> Homo sapiens

<400> 24																
His	Gly	Ile	Phe	Met	Asp	Arg	Leu	Ala	Ser	Lys	Lys	Leu	Cys	Ala	Asp	
	1			5					10					15		
Asp	Glu	Cys	Val	Tyr	Thr	Ile	Ser	Leu	Ala	Ser	Ala	Gln	Glu	Asp	Tyr	
			20					25					30			
Asn	Ala	Pro	Asp	Cys	Arg	Phe	Ile	Asn	Val	Lys	Lys	Gly	Gln	Gln	Ile	
		35					40					45				
Tyr	Val	Tyr	Ser	Lys	Leu	Val	Lys	Glu	Asn	Gly	Ala	Gly	Glu	Phe	Trp	
	50					55				60						
Ala	Gly	Ser	Val	Tyr	Gly	Asp	Gly	Gln	Asp	Glu	Met	Gly	Val	Val	Gly	
	65				70				75						80	
Tyr	Phe	Pro	Arg	Asn	Leu	Val	Lys	Glu	Gln	Arg	Val	Tyr	Gln	Glu	Ala	
				85					90					95		
Thr	Lys	Glu	Val	Pro	Thr	Thr	Asp	Ile	Asp	Phe	Phe	Cys	Glu			
			100					105					110			

<210> 25
 <211> 330
 <212> DNA
 <213> Mus sp.

<220>
 <221> CDS
 <222> (1)..(330)

<400> 25																
cat	ggg	gta	ttt	atg	gat	aaa	ctt	tct	tct	aag	aag	ttg	tgt	gcg	gat	48
His	Gly	Val	Phe	Met	Asp	Lys	Leu	Ser	Ser	Lys	Lys	Leu	Cys	Ala	Asp	
	1				5				10				15			

10

```

gag gag tgt gtc tat act att tct ctg gca aga gca cag gaa gat tac 96
Glu Glu Cys Val Tyr Thr Ile Ser Leu Ala Arg Ala Gln Glu Asp Tyr
      20                25                30

aat gcc cca gac tgt agg ttc atc gat gtc aag aaa ggg cag cag atc 144
Asn Ala Pro Asp Cys Arg Phe Ile Asp Val Lys Lys Gly Gln Gln Ile
      35                40                45

tat gtt tac tcc aag ctg gta aca gaa aac gga gct gga gag ttt tgg 192
Tyr Val Tyr Ser Lys Leu Val Thr Glu Asn Gly Ala Gly Glu Phe Trp
      50                55                60

gct ggc agt gtt tat ggt gac cac cag gat gag atg gga att gta ggt 240
Ala Gly Ser Val Tyr Gly Asp His Gln Asp Glu Met Gly Ile Val Gly
      65                70                75                80

tat ttc ccc agc aac ttg gtg aag gag cag cgt gta tac cag gag gcc 288
Tyr Phe Pro Ser Asn Leu Val Lys Glu Gln Arg Val Tyr Gln Glu Ala
      85                90                95

acc aag gag atc cca acc acg gat att gac ttc ttc tgt gaa 330
Thr Lys Glu Ile Pro Thr Thr Asp Ile Asp Phe Phe Cys Glu
      100                105                110

```

<210> 26
 <211> 110
 <212> PRT
 <213> Mus sp.

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<400> 26
His Gly Val Phe Met Asp Lys Leu Ser Ser Lys Lys Leu Cys Ala Asp
  1              5              10              15

Glu Glu Cys Val Tyr Thr Ile Ser Leu Ala Arg Ala Gln Glu Asp Tyr
  20              25              30

Asn Ala Pro Asp Cys Arg Phe Ile Asp Val Lys Lys Gly Gln Gln Ile
  35              40              45

Tyr Val Tyr Ser Lys Leu Val Thr Glu Asn Gly Ala Gly Glu Phe Trp
  50              55              60

Ala Gly Ser Val Tyr Gly Asp His Gln Asp Glu Met Gly Ile Val Gly
  65              70              75              80

Tyr Phe Pro Ser Asn Leu Val Lys Glu Gln Arg Val Tyr Gln Glu Ala
      85              90              95

Thr Lys Glu Ile Pro Thr Thr Asp Ile Asp Phe Phe Cys Glu
      100              105              110

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<210> 27
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 27

cgaattccca ccattggcaag gatattgatt cttttgcttg

40

<210> 28

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 28

gtacagtcga cttcacagaa gaagtcaata tccgtgggtg

40

<210> 29

<211> 923

<212> DNA

<213> Homo sapiens

<400> 29

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gtcagagttc aagttaaaac agaaaaaagg aagatggcaa gaatattggt acttttcctc 60
ccgggtcttg tggctgtatg tgctgtgcat ggaatattha tggaccgtct agcttccaag 120
aagctctgtg cagatgatga gtgtgtctat actatttctc tggctagtgc tcaagaagat 180
tataatgccc cggactgtag attcattaac gttaaaaaag ggcagcagat ctatgtgtac 240
tcaaagctgg taaaagaaaa tggagctgga gaattttggg ctggcagtgt ttatgggtgat 300
ggccaggacg agatgggagt cgtgggttat ttccccagga acttgggtcaa ggaacagcgt 360
gtgtaccagg aagctaccaa ggaagtcccc accacggata ttgacttctt ctgcgagtaa 420
taaattagtt aaaactgcaa atagaaagaa aacacaaaaa ataaagaaaa gagcaaaagt 480
ggccaaaaaa tgcattgtctg taattttgga ctgacgtttt aagaatttgt taccttacag 540
aagagcaagg gcttaggggt tggaggtggc agataaaaaga ggattttcaa ctcaaattctt 600
gtttcctgct ggcctggctc gccacgagc tagagcgggg aaatgttgag ctcaaattggg 660
taaattgaga ccagaaaatt attttttcaa cctagagaat ctctcttac aggggggatgc 720
atataacaga tcatgtatgt gtagttatth ctaagtagta attcttccca gctctttgat 780
ttgccatata taaaataggt gggctgtatg tcttcccttt agacatgatg ttttctactc 840
atttgtctct ctggccaatt gaattattaa taaaagggtc gtattatcaa agaaaaaaa 900
aaaaaaaaa aaaaaaaaaa aaa 923

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<210> 30

<211> 947

<212> DNA

<213> Mus sp.

<400> 30

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aagaaggaag atggcaagga tattgattct tttgcttggg ggccttgtgg ttctatgtgc 60
cgggcatggt gtatttatgg ataaactttc ttctaagaag ttgtgtgcgg atgaggagtg 120
tgtctatact atttctctgg caagagcaca ggaagattac aatgccccag actgtagggt 180
catcgatgtc aagaaagggc agcagatcta tgtttactcc aagctggtaa cagaaaacgg 240
agctggagag ttttgggctg gcagtgttta tggtgaccac caggatgaga tgggaattgt 300
aggttatttc cccagcaact tgggtgaagg gcagcgtgta taccaggagg ccaccaagga 360
gatcccaacc acgatattg acttcttctg tgaataagaa attaattaaa acagcagata 420
aaacagaaac accagtgatg aagaagagaa gaagtggaaa taactgaacc tgtgtatccg 480

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12

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taccttcctg gctttatttg gtggcaggag gttggagctt gaagggtgcta agatatggaa 540
attgtcaact cagtcttggt tactcttgcc ccggtctttc caccaactgc gactaagtgc 600
tgtgtgaatc atataaggtca tttataaccc aataacttagc tttcagcgag gagaatcttt 660
atttactcag tgatgaacat ataagggtgt ttatctgtag ttatttctaa atggtcattc 720
tccccagctc tgactccatg tccttaagct tgctgagtta gaagtctgac ttttgggtgt 780
gttttctggt atttgtctct ctggatcatgt gaagtcttaa taatgtattt gtcataataa 840
cttctatttg ttacttttta tatctgatgc ccttggatag aagaatgtta ggtataaaac 900
aagtttttgt actcccaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 947

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<210> 31
 <211> 21
 <212> PRT
 <213> Mus sp.

<400> 31
 Val Lys Glu Gln Arg Val Tyr Gln Glu Ala Thr Lys Glu Ile Pro Thr
 1 5 10 15

Thr Asp Ile Asp Cys
 20

<210> 32
 <211> 41
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 32
 gtacagtcga cttattcaca gaagaagtca atatccgtgg t 41

<210> 33
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 33
 cgaattccca ccatggcaag aatattgtta cttttcctc 39

<210> 34
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 34
 gtacagtcga cctcgagaa-gaagtcaata-tccgtggg 38

<210> 35
 <211> 41
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 35
 gtacagtcga cttactcgca gaagaagtca atatccgtgg t 41

<210> 36
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 36
 cgaattccca ccatgggtg gtccccagtg ctcctt 36

<210> 37
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 37
 gtacagtcga cctggcagta gaaatcccat tgatcggt 38

<210> 38
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 38
 gtacagtcga cctggcagta gaaatcccat tgatcggt 38

<210> 39
 <211> 87
 <212> PRT
 <213> Rattus sp.

<400> 39
 Asp Lys Leu Ser Ser Lys Lys Leu Cys Ala Asp Glu Glu Cys Val Tyr

1

5

10

15

14

Thr Ile Ser Leu Ala Arg Ala Gln Glu Asp Tyr Asn Ala Pro Asp Cys
 20 25 30

Arg Phe Ile Asn Val Lys Lys Gly Gln Gln Ile Tyr Val Tyr Ser Lys
 35 40 45

Leu Val Thr Glu Asn Gly Ala Gly Ala Phe Trp Ala Gly Ser Val Tyr
 50 55 60

Gly Asp His Gln Asp Glu Met Gly Ile Val Gly Tyr Phe Pro Ser Asn
 65 70 75 80

Leu Val Arg Glu Gln Arg Val
 85

<210> 40
 <211> 261
 <212> DNA
 <213> Rattus sp.

<220>
 <221> CDS
 <222> (2)..(261)

<400> 40
 g gat aaa ctt tct tct aag aag ttg tgt gca gat gag gag tgt gtc tat 49
 Asp Lys Leu Ser Ser Lys Lys Leu Cys Ala Asp Glu Glu Cys Val Tyr
 1 5 10 15

acc att tct ctg gca aga gca cag gaa gac tac aat gcc ccg gac tgt 97
 Thr Ile Ser Leu Ala Arg Ala Gln Glu Asp Tyr Asn Ala Pro Asp Cys
 20 25 30

agg ttc atc aat gtc aag aaa ggg cag cag atc tat gtt tat tcc aag 145
 Arg Phe Ile Asn Val Lys Lys Gly Gln Gln Ile Tyr Val Tyr Ser Lys
 35 40 45

ctg gta aca gaa aat gga gct ggg gca ttc tgg gct ggc agt gtt tat 193
 Leu Val Thr Glu Asn Gly Ala Gly Ala Phe Trp Ala Gly Ser Val Tyr
 50 55 60

ggt gac cac cag gat gag atg gga att gtg ggt tat ttc ccc agc aac 241
 Gly Asp His Gln Asp Glu Met Gly Ile Val Gly Tyr Phe Pro Ser Asn
 65 70 75 80

ttg gtt aga gag caa cga gt 261
 Leu Val Arg Glu Gln Arg Val
 85

<210> 41
 <211> 307
 <212> DNA
 <213> Rattus sp.

<220>
 <221> CDS

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 44

agacacactc ctcactctgca cacaacttc

29

<210> 45

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 45

ctcctcatct gcacacaact tcttagaaga

30

<210> 46

<211> 384

<212> DNA

<213> Rattus sp.

<220>

<221> CDS

<222> (1)..(384)

<400> 46

atg	gca	aga	ata	ttg	att	ctt	ttg	ctt	ggg	ggc	ctt	gtg	gct	ctc	tgt	48
Met	Ala	Arg	Ile	Leu	Ile	Leu	Leu	Leu	Gly	Gly	Leu	Val	Ala	Leu	Cys	
1				5					10					15		

gcc	ggg	cat	ggc	atg	ttt	atg	gat	aaa	ctt	tct	tct	aag	aag	ttg	tgt	96
Ala	Gly	His	Gly	Met	Phe	Met	Asp	Lys	Leu	Ser	Ser	Lys	Lys	Leu	Cys	
			20					25						30		

gca	gat	gag	gag	tgt	gtc	tat	acc	att	tct	ctg	gca	aga	gca	cag	gaa	144
Ala	Asp	Glu	Glu	Cys	Val	Tyr	Thr	Ile	Ser	Leu	Ala	Arg	Ala	Gln	Glu	
			35				40					45				

gac	tac	aat	gcc	ccg	gac	tgt	agg	ttc	atc	aat	gtc	aag	aaa	ggg	cag	192
Asp	Tyr	Asn	Ala	Pro	Asp	Cys	Arg	Phe	Ile	Asn	Val	Lys	Lys	Gly	Gln	
	50					55					60					

cag	atc	tat	gtt	tat	tcc	aag	ctg	gta	aca	gaa	aat	gga	gct	ggg	gca	240
Gln	Ile	Tyr	Val	Tyr	Ser	Lys	Leu	Val	Thr	Glu	Asn	Gly	Ala	Gly	Ala	
	65					70				75					80	

ttc	tgg	gct	ggc	agt	gtt	tat	ggt	gac	cac	cag	gat	gag	atg	gga	att	288
Phe	Trp	Ala	Gly	Ser	Val	Tyr	Gly	Asp	His	Gln	Asp	Glu	Met	Gly	Ile	
				85				90						95		

gtg	ggt	tat	ttc	ccc	agc	aac	ttg	gtt	aga	gag	caa	cga	gtg	tac	cag	336
Val	Gly	Tyr	Phe	Pro	Ser	Asn	Leu	Val	Arg	Glu	Gln	Arg	Val	Tyr	Gln	
			100					105							110	

aat gcc ccg gac tgt agg ttc atc aat gtc aag aaa ggg cag cag atc 144
Asn Ala Pro Asp Cys Arg Phe Ile Asn Val Lys Lys Gly Gln Gln Ile
-----35-----40-----45

18

tat gtt tat tcc aag ctg gta aca gaa aat gga gct ggg gca ttc tgg	192
Tyr Val Tyr Ser Lys Leu Val Thr Glu Asn Gly Ala Gly Ala Phe Trp	
50 55 60	
gct ggc agt gtt tat ggt gac cac cag gat gag atg gga att gtg ggt	240
Ala Gly Ser Val Tyr Gly Asp His Gln Asp Glu Met Gly Ile Val Gly	
65 70 75 80	
tat ttc ccc agc aac ttg gtt aga gag caa cga gtg tac cag gag gcc	288
Tyr Phe Pro Ser Asn Leu Val Arg Glu Gln Arg Val Tyr Gln Glu Ala	
85 90 95	
acc aag gag att cca acc acg gat att gac ttc ttc tgt gaa	330
Thr Lys Glu Ile Pro Thr Thr Asp Ile Asp Phe Phe Cys Glu	
100 105 110	

<210> 49
 <211> 110
 <212> PRT
 <213> Rattus sp.

<400> 49	
His Gly Met Phe Met Asp Lys Leu Ser Ser Lys Lys Leu Cys Ala Asp	
1 5 10 15	
Glu Glu Cys Val Tyr Thr Ile Ser Leu Ala Arg Ala Gln Glu Asp Tyr	
20 25 30	
Asn Ala Pro Asp Cys Arg Phe Ile Asn Val Lys Lys Gly Gln Gln Ile	
35 40 45	
Tyr Val Tyr Ser Lys Leu Val Thr Glu Asn Gly Ala Gly Ala Phe Trp	
50 55 60	
Ala Gly Ser Val Tyr Gly Asp His Gln Asp Glu Met Gly Ile Val Gly	
65 70 75 80	
Tyr Phe Pro Ser Asn Leu Val Arg Glu Gln Arg Val Tyr Gln Glu Ala	
85 90 95	
Thr Lys Glu Ile Pro Thr Thr Asp Ile Asp Phe Phe Cys Glu	
100 105 110	

<210> 50
 <211> 18
 <212> PRT
 <213> Rattus sp.

<400> 50
Met Ala Arg Ile Leu Ile Leu Leu Leu Gly Gly Leu Val Ala Leu Cys
1 5 10 15

Ala Gly

19

<210> 51
 <211> 130
 <212> PRT
 <213> Rattus sp.

<400> 51
 Met Val Cys Ser Pro Val Leu Leu Gly Ile Val Ile Leu Ser Val Phe
 1 5 10 15
 Ser Gly Leu Ser Arg Ala Asp Arg Ala Met Pro Lys Leu Ala Asp Arg
 20 25 30
 Lys Leu Cys Ala Asp Glu Glu Cys Ser His Pro Ile Ser Met Ala Val
 35 40 45
 Ala Leu Gln Asp Tyr Val Ala Pro Asp Cys Arg Phe Leu Thr Ile Tyr
 50 55 60
 Arg Gly Gln Val Val Tyr Val Phe Ser Lys Leu Lys Gly Arg Gly Arg
 65 70 75 80
 Leu Phe Trp Gly Gly Ser Val Gln Gly Asp Tyr Tyr Gly Asp Leu Ala
 85 90 95
 Ala His Leu Gly Tyr Phe Pro Ser Ser Ile Val Arg Glu Asp Leu Thr
 100 105 110
 Leu Lys Pro Gly Lys Val Asp Met Lys Thr Asp Glu Trp Asp Phe Tyr
 115 120 125
 Cys Gln
 130

<210> 52
 <211> 130
 <212> PRT
 <213> Bos sp.

<400> 52
 Met Ala Trp Ser Leu Val Phe Leu Gly Val Val Leu Leu Ser Ala Phe
 1 5 10 15
 Pro Gly Pro Ser Ala Gly Gly Arg Pro Met Pro Lys Leu Ala Asp Arg
 20 25 30
 Lys Met Cys Ala Asp Glu Glu Cys Ser His Pro Ile Ser Val Ala Val
 35 40 45
 Ala Leu Gln Asp Tyr Val Ala Pro Asp Cys Arg Phe Leu Thr Ile His
 50 55 60
 Gln Gly Gln Val Val Tyr Ile Phe Ser Lys Leu Lys Gly Arg Gly Arg
 65 70 75 80
 Leu Phe Trp Gly Gly Ser Val Gln Gly Asp Tyr Tyr Gly Asp Gly Ala
 85 90 95

20

Ala Arg Leu Gly Tyr Phe Pro Ser Ser Ile Val Arg Glu Asp Gln Thr
100 105 110

Leu Lys Pro Ala Lys Thr Asp Val Lys Thr Asp Ile Trp Asp Phe Tyr
115 120 125

Cys Gln
130

<210> 53

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Flag epitope
sequence

<400> 53

Asp Tyr Lys Asp Asp Asp Asp Lys
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